FYP Ideas - Fall 2023

1. FYP Title

FYP Highlights

2. Decentralized Governance of Smart Transportation Using Blockchain

The project is currently aimed towards detecting urban damage to ensure efficient flow of traffic in order to make cities safer and more secure. It is a data driven platform to make smart cities safer using the latest technologies to help create a smarter, more efficient and safer transportation system, that detects and reports road related damages to ensure public safety.

Tools, Languages/ Technologies: Python, Android, Tensorflow, Ethereum, Ganache

3. FLEXCHAIN

FlexChain is a custom built permissioned blockchain which allows a university to manage its students' grades and marks within a decentralized blockchain. It aims to develop a solution which is blockchain based where marks and grades are added in a block and re-verified and added to the immutable block chain.

Tools, Languages/ Technologies: NodeJS, Atom, GoLang, Html, CSS, Bootstrap, Blockchain

4. SitAR "Improving Situational Awareness using Augmented Reality"

The project aims to provide a system that consists of a database that manages the retrievals and fetches of data dumped in it by the sensors. This data is then acquired by a mobile device which through the use of AR displays it to the user's screen in a meaningful way.

Tools, Languages/ Technologies: AR, MongoDB, Mapbox, Swift, XCode

5. SPECTRE

This project includes the 3D Visualization of macromolecules involved in the drug creation process i.e. proteins and drugs along with the display of interaction and the energy calculated at orientation set by the user according to his/her hand gestures or the VR headset controllers. The project aims:
1. To precisely orient the molecules according to the user's gestures.
2. To save money spent on experiments during the drug discovery process.
3. To grab, rotate, or enlarge molecules and measure distances or angles between atoms.
4. To use Virtual Reality, a tool meant for gaming purposes, for a medical cause thus opening up new uses of the technology.

Tools, Languages/ Technologies: C#, Visual Studio, oculus, C#, PubMed, PDB

6. Customer Attrition Analytics

The project is to design and develop a web-based business analytics application which, as the name implies, uses machine learning and business intelligence techniques to find the patterns in the customer turnover data. A dashboard UI visualizes the data using appropriate data visualization techniques which assists an organization in retaining its original customers. The focus of this project is to retain original customers for sustainable customer base growth instead of acquiring new customers.

Tools, Languages/ Technologies: Plotly, Python, Scikit Learn, Bootstrap, Dash

7. Mining Dynamic Social Networks

There is a critical need to summarize large graphs into concise forms that can be more easily visualized, processed, and managed. This research and development project proposes the need to study these graphs deeply summarize them so that they become precise and find in them the different patterns of connectivity which can be further used to understand human behavior. This project initially uses an algorithm known as TIMECRUNCH, which summarizes graphs, extracts patterns, stitches patterns over time and then displays them. It further compares the previous results with a new proposed algorithm to get better results.

Tools, Languages/ Technologies: Eclipse, Java, SNAP, GS, Data Minig

8. Salah Tracker

Salah Tracker is a mobile based application that monitors the activities of a Muslim in each Rakah using sensors of a smart watch. It informs the user about the time spent on each activity during each Rakah and if each activity was performed correctly during Salah. The user would be informed about the average time spent on each Rakah and if he has missed any Rakah. In addition, along with the Salah timings, users would be informed about the prayers performed all day.

Tools, Languages/ Technologies: Android, Firebase, Java, Python

9. VEDS
Vantage: Easy Data Science

VEDS (Vantage: Easy Data Science) is a graphical tool over Vantage designed for Teradata which uses Teradata's SQL, Machine Learning Engines to perform data science operations. It integrates Teradata's Machine Learning Algorithms which execute in-database. In-database execution performs exceptionally well over the traditional in-memory execution since DB engines implement transactions, which are much more fine-grained than most "in-memory" approaches to managing persistent data. VEDS is developed keeping in mind the advantages of in-database execution, so that it can perform better than the other tools which execute algorithms in-memory.

Tools, Languages/ Technologies: React, Python, Python Web Framework, Teradata's Machine Learning Engine, R Programming, SQL, Vantage

10. Autonomous Game-Playing Robot

The objective of the project is to create a robot that can autonomously play chess against a human player. The players interaction with the robot is limited to only starting a game and performing moves. Everything else is handled autonomously. The software is also structured in such a way that the robot can be made capable of playing other board games with minimal changes, barring those that relate to the specifics of a particular game.

Tools, Languages/ Technologies: Android, Firebase, Java, Python

11. Summix – An Automated Privacy Policy Analyzer and Summarizer

Summix is an tool for Automated Privacy Policy Analyzation and Summarization. It performs Extractive as well as Abstractive (Human like) summaries to devise a solution for the people who use websites, applications and softwares but do not read their privacy policies and end user agreements despite being very much concerned about their data safety. It enables its users to automatically generate summarized, concise and precise bullet points out of the Privacy Policies and end user agreements. It is basically a guide for the user and development team so that they can have an overview of what is the software all about.

Tools, Languages/ Technologies: Python, Android, Tensorflow

12. FINE PRINT Privacy Policies and Cyber Laws

The aim of this project is to enable users to check privacy policies against data protection laws. It handles two laws: GDPR and PDPA. Binary models are used for classification for each category. The models include Logistic Regression, Support Vector Machine, and Pre-training of Deep Bidirectional Transformers for Language Understanding (BERT). The use of F1 score is done for evaluation.

Tools, Languages/ Technologies: Flask, Spacy, Github, NLTK, Python, Keras

13. Pakalo – Artificially Intelligent Cooking Assistant

Pakalo is an application that contains recipes and has a chatbot. The chatbot uses speech and text input from its users and understands it to be able to find recipes, go step by step throughout the recipe alongside the user, suggest recipes according to the user’s interests and the limited ingredients a user has, mention ingredients that are required to make a particular recipe, suggest halal substitute ingredients for recipes with their opposite counterparts and more.

Tools, Languages/ Technologies: NoSql, Python, Keras, Github, RASA, Spacy, Java, Android

14. Trek Siri
Traveling made easier

Trek Siri is a product that assists travelers in making their trip the most memorable one. It helps travelers in choosing what kind of clothes to pack based on their destinations, temperature at those places and even what hotels are the best to stay in while they are there. The project only deals with the northern areas of Pakistan and does not deal with the itinerary planning or the management aspect of trips.

Tools, Languages/ Technologies: NLU, RASA

15. Neo – AI Conversational Agent

Neo is a project that intends to build a conversation expert with personality which is able to chat on various topics, with its conversation consistent to its persona. Agent that can chat with humans in the way that people talk to each other will be easier and more enjoyable to use in the day-to-day lives — going beyond simple tasks like playing a song or booking an appointment.

Tools, Languages/ Technologies: Python, NodeJS, Pytorch, RASA, React Native

16. SecureJS
(JavaScript Automated Vulnerability Exploit Tool)

SecureJS is a tool which can find vulnerabilities in a given code of JavaScript or in other words can be called a JavaScript Automated
Vulnerabilities Exploiter. The vulnerabilities is a tedious task for human beings as they have go through the code line by line or use
static analyzers, on the other hand, deep machine learning is well suited for this problem as if we can teach the program how a
vulnerability behvaes and looks in code.

Tools, Languages/ Technologies: Python, MongoDB, Django, Tensorflow, csv, tokenization, javascript XSS, vector, Google Colab,
code2vec, codeBERT, id2vec,word2vec

17. WordsInAction

“Words in Action”is to automatically convert the natural language into animation. A desktop application that would help people
to visualize the written scripts and scenario to have a clear image of what is written. The main objectives of WordsInAction
project are Parsing the script into sentences, Handling complex sentences, then to train a model for the extraction of semantic
actions from the given scripts. From the giving sequence to the extracted actions and mapp the action on the character.

Tools, Languages/ Technologies: Unity 3D, Python, C#, Github, Natural Language Processing, Text Processing, Extraction,
Character retrival, MappingNLTKL, Animation, Testing.

18. SMART BILL MANAGER

The purpose of this SmartBill to collect, analyze, and define high-level needs and features of the Bill Man. It focuses on identifying and agreeing on the problems faced by people in handling, managing and storing their bills, and further the effects of those problems on productivity and efficiency. Further the solution is proposed which is a smart bill manager called Bill Man
and consequently its benefits.

Tools, Languages/ Technologies: WAPDA Bill dataset, Image preprocessing, Image localization, classification, Tesseract OCR,
VGGNet Classifier, YOLO, OpenCV, Firebase Cloud, NoSQL, jSON, Android Application

19. Vehicle Surveillance Using Blockchain

The purpose of Vehicle Surveillance Using Blockchain is the use of a decentralized structure that spreads the control power among the involved organizations, while maintaining transparency, security and decentralization. We created a system with the use of blockchain, to achieve the surveillance and management of Vehicles or Unmanned Aerial Vehicles. This system provides a digital contract in order to facilitate a secure drone or mobile vehicle journey that is feasible to the drone holder, and authenticated and verified by the involved authorities.

Tools, Languages/Technologies: React Application, IoT Device, Webserver Express, WebServer IoT, Bloackchain. Sensors, Trilateration, ESP32, LM298H Bridge, DC Motor, Arduino UNO, Bluetooth,

20. KARAVAN
Smart Traffic Flow – Design and Formal Verification

The purpose of KARAVAN is creating an IOT based car that will assist drivers using sensors, Indoor Positioning System and image processing. It will also consist of an Android application that will allow the users to monitor the caravan. Moreover, the project will be formally verified using model checking. Modules of this project will include localization, processing the camera stream on the servers, a car following the white lines and operate according to commands, a GUI for continuously observing the location of car and the KARAVAN

Tools, Languages/Technologies: Autonomous Cars, Formal Verification, Validation, UPPAAL, IAR VisualState, Model Checking, Indoor Positioning System, Arduino, ESP32, Image Processing, Internet of Things, Microcontrollers, Machine Learning, Smart Traffic Flow, Verification & Validation, Assurance Technologies, Software Testing.

21. Indoor Pilot

IndoorPilot is a software that gives you the ability to map your buildings and share the map with anyone to help them navigate indoors. It includes select a building with abundant WiFi access points, upload a map or design a map using this tool. It will collect necessary information to enable indoor navigation for the building. Select a destination and let IndoorPlot guide you.
Tools, Language/Technologies: VScode, NodeJS, MongoDB, AngularJS, Android Studio.

22. Modeling Internet of Things behavior with Business Process

The goal is to support business process management using IoT information for both technical users and business users, by providing a notation that is intuitive to business users, yet able to represent complex process semantics. The business process has four components; events, activities, gateways, and connections. Your business process must have a start event, 2 script tasks, and an end event.
Tools, Languages/Technologies: Eclispe, ESP32, Arduino UNO, Java, C++, JBPM, IoT, API, DHT11, Bluetooth,

23. AUDIOBOT

A user specific android application that simulates an intelligent conversation with its users in natural language. It includes application speaks, user listens or vice versa. All natural language processing and data services are between system and user. Audiobot learns more about the user by accessing users' private information and public data from call logs, text messages, location and Twitter profile.

Tools, Languages/Technologies: Python, Android studio, Aimybox, RASA, Webscrapping, Conversion API, Firebase, Context Generation, Data modeling, Database handling

24. speech2face – Speech recognition based on facial images

Speech2Face comprises of multiple deep neural networks with an aim to learn the correspondance between facial and vocal features of humans. The model isused to construct a human face from merely an audio sample. The reconstructed face is matched with user provided facial images to give a positive person identification match.

Tools, Languages/Technologies: AVSpeech and VoxCeleb datasets, Python, Anaconda, Google Colab, Pytorch, Facial Decoder, Audio Waveform, Voice Encoder, 4096-d Features,

25. DeepAL – Deep Learning for Assisted Living

DeepAL classifies human activities such as human falling and human choking in order to detect the problems which are most specifically faced by elderly people. The model proposed by this project uses the data which has been augmented by adding additional features introduced by the face, hand positions and key-point models. We tackle the task component of increasing the accuracy of a model by training it on a small and structured dataset through data augmentation.

Tools, Language/Technologies: Python, Tensorflow, OpenCV, Deep learning, Neurl network, face, hand and pose detection

26. IMGEN
Image Generation through GANs

IMGEN contains the findings of the research conducted on GANs to produce synthetic images. Our aim has been to identify gaps, and study literature to propose our project methodology. Later part of the report contains our findings, results and proposed methodology.

Tools, Languages/Technologies: Python, flask, web development, Keras, HTML, CSS, User Interface, feature selection, static and variable image generation.

27. VividUS

This project will be focusing on the development of an application aimed at the assistance of the visually impaired through the techniques of image processing primarily and machine learning and data mining secondarily. After the object has been detected, the application will be able to identify the estimated distance from the subject. Reporting back to the user via audio output Once all the algorithms of object classification and distance estimation is done the feedback will be given back to the user via audio output.

Tools, Language/Technologies: Python, tensorflow, tensorflow Lite, openCV, Android studio, object detection, UI/UX, feature extraction and classification, COCO SSD MobileNet, image annotation, Labelling Map, HCI.

28. Malicious Application Detection

MalwareDetect, Firstly, analyze the relationship between system functions, sensitive permissions,and sensitive application programming interfaces. The combination of system functions will be used to describe the application behaviors and construct eigenvectors. Subsequently, based on the eigenvectors, we will compare the methodologies of naive Bayesian, J48 decision tree, and application functions decision algorithm regarding effective detection of malicious Android applications. MalwareDetect is then applied to test sample programs and real-world applications.
Tools/Languages/Technologies: Android Studio, Python, Java, SQLite, Data gathering, Model Design, Front & Back end integration, Real time Analysis

29. Share n' Care

Nowadays, if someone is new in any city, he does not has interaction with people. If he wants to eat or share books with new people, he can't. There is no platform or application where he can interact with new people. Share n' Care is an application through which unknown people can interact with each other and mshare food and books. Through this application, unknown people can notify each other if they want to eat food at the same time at the same restaurant or share books with each other.

Tools,Languages/Technologies: android studio, jupyter and MySql, NodeJS, Python.

30. FASTalk (AcademicBot)

To implement the idea of generative chatbots for academic purposes, we have integrated systems like Slate and the official website of the university (nu.edu.pk). Our study proposes to investigate how generative context based chatbot can be made using Deep Learning and NLP techniques. By using these techniques we will build generative context based chatbot that can produce better Natural Language responses closest to Human Languag and works on a small dataset as Slate and NU website would be the only primary source of our academic data.
Tools,Languages/Technologies: Doc2Vec, Encoder Decoder based LSTM, deep learning,, text classification, embeddings, keywords, BLEU score, Informativeness.

31. Visual Object Labelling Assistant

The Visual Object Labelling Assistant is a dataset creation tool which will revolutionize the way datasets are created and annotated. The application will be user-friendly, scalable for large work forces, easy to use/ learn and intuitive. This problem is more pronounced in the case of satellite imagery data where images are very large in both size and quantity, and contains many objects of interest. To solve this problem, we propose the Visual Object Labeling Assistant.

Tools,Languages/Technologies: Artificial Intelligence, annotation, labels, image dataset, Django-rest backend server, React development server (hot-reload), Instance segmentation, Fine-tuning, image embeddings, vertex embedding, feature extraction, polyTransform

32. Hate speech detection and classification using deep learning.

The problem is that there are many sites and social media platforms who want to restrict and block specific type of hate or discriminating content. And by further categorizing the type of hate speech or discrimination which will lead to detection, removal and control of hate speech. For example, the tension between Pakistan and India many politicians are spreading hate content on the social media. As a byproduct we will find the intensity of the hate speech in tweets of different famous politicians so we can conclude which people are spreading more hate in the region and raise voice about the politicians
Tools/Languages/Technologies: Datasets (WZ-L (wassen), WZ-S.AMT, WZ-S.EXP,■WZ-S.GB , WZ-ls, Rm), Twee dataset, Word embeddings, word2vec, deep learning , Python, Keras, Flask, Google, Colab, classification, neural network, tweet encoding, LSTM, Max pooling concatenation, F1 score, CNN + GRU

33. PakTouring Expanding Horizon

PAK Touring is creating a personalized itineray using a recommendation system with customization options according to the user needs. So a web portal is a solution that helps you with all the ambiguities. For the working this portal will take basic parameters as inputs: Number of days of stay, Budget, type of trip, Number of people, Destination, date etc. This recommendation system will be very helpful for tourists not only from within the Pakistan but also from outside of Pakistan who want to explore and fulfill their adrenaline rush.

Tools/Languages/Technologies: Python, Firebase, MongoDB, Node, Angular, databse modeling, front and back en developemnet, model authentication, recommender system, user persona generation

34. JAIZA
Early Prediction of Heart Disease using Lossless Data

The aim for this research was to identify the semantic data loss that occurs when processing big data in frameworks like Hadoop, and to identify an ideal approach for making disease predictions using a vast size of health records. When considering healthcare documents, this data loss is unacceptable as the information contained within is sensitive and crucial. The effect of this can be observed when making heart disease predictions on the processed data.
Tools/Languages/Technologies: Big data, heart dataset, prediction analytics, hadoop, python, eclipse, WEKA 3, ubuntu, accuracy, J48, Random forest, SVM, Naive Bayes, PART, NBTree, LMT, LAD tree

35. PatwariX Land Registry on Block Chain

PatwariX is a Land Transaction and Registry System based on Ethereum (Block Chain). The system includes record handling of lands, buildings or any real estate related property. Chained data link i.e. history is maintained of all previous owners. Multi signature transactions as a land can't be transferred without the digital signatures of buyer, seller and the authority. Authority can add property initially. The owner is able to transfer his owned lands in separate portions i.e. break a big block and sell.

Tools, Language/Technologies: Angular, Node js, python, Ethereum, Warehouse Management Sofware, Truffle, Ganache

36. Comparative Analysis of Different Word Embedding Techniques

The goal of the project was to train the following word-embedding models for Urdu and Roman Urdu: (Word2Vec,fastText,GloVe,ELMo,BERT) and evaluate these techniques to see how they fare against each other over a set of metrics. The following is a report on the Comparative Analysis of Different Word Embedding Techniques on the Urdu and Roman Urdu languages. To generate word embeddings, Urdu and Roman Urdu corp were used which needed to be cleaned and pre-processed before they could be used for training. This involved removing adding spaces between words, removing punctuations marks and numbers. The techniques that we evaluated are Word2Vec, fastText, GloVe, ELMo and BERT. Both variants of Word2Vec and fastText techniques (CBOW and Skip-gram) were trained using the implementations provided by Gensim.
Tools/Languages/Technologies: Word2Vec, GloVe, fastText, ELMo, BERT, Natural Language Processing, Urdu dataset (WordSim-353 and SimLex-999) , sentiment analysis, Named Entity Recognition, PoS Classification, CBOW, Skip-gram, XNLI

37. Rare Words using sub-word Information

This work includes Roman-Urdu to Urdu transliteration which also handles rare word problems by use the state of the art transformer model on tensor2tensor which is a new google library for neural machine learning.The transformer model uses attention mechanism and uses subword information using its own built-in subword technique for transliteration on own dataset that included around 6million sentences for Roman-Urdu and Urdu-script each. We trained for 300k steps with a vocab size of 20k and tuned hyper parameters. The BLEU score we managed to achieve was 82.4 which exceeded our target. The loss function became quite stable after 70k steps.
Tools/Languages/Technologies: Neural Machine Model for Translation, tensor2tensor, Seq2Seq, Convolutional Neural networks, encoders, decoders, softmax, Transformer, BLEU score, Loss Score, Corpora (Roman Urdu, Urd script), hyperparameters.

38. TRACES - game

The game will include a simple main interface which is a map with current location pin. The game will allow players to place traces at GPS coordinates and view other traces. Players can replace traces of other people. Players will be scored according to the time their trace remains undiscovered. This score will be calculated by an algorithm that we will deduce. An intriguing gameplay strategy will be designed to motivate the players to continue playing. 3D models will be used from a store and will not be designed by us. There is also a solo mode player option.
Tools/Languages/Technologies: Augmented Reality, GPS clocation, ARCore, MapBox, User design, firebase, 3D Models

39. ARCeus - Augmented Reality Game

ARCeus is a multiplayer pokemon fighting game having virtual 3D pokemons on shared real world surface using augmented reality to provide user a whole new experience of real world gaming. The object of ARCeus is Shared Augmented Reality Experience and Realtime collaborative session between two users. it is a multiplayer Pokemon battle on real world surfaces using Augmented Reality.
Tools/Languages/Technologies: Unity 3D, C#, ARKit 3, RealityKit, Swift, Blender, Vitual 3D Characters, Deventralized peer 2 peer network

40. iCode

iCode is a project that focuses on the development of a web based tool that processes GUI screenshots provided by a user, and translates them into HTML code for a browser webpage. The project primarily focuses on developing coherent and accurate assistive structures for web development purposes, rather than producing full fledged end user solutions. It is a webbased tool that converts GUI screenshots into HTML code.
Tools/Languages/Technologies: TensorFlow, DJango, PyCharm, HTML Mapping, Text extraction using OCR, Component extraction using Computer Vision, Webpage Code generation, Contouring, Data labeling

41. Wandering Minds

It is an end-to-end game for a particular coding concept, at various skill levels. The purpose of this research is to design challenges for users that focus on the improvement of their cognitive skills and provide users with an idea of their progression in programming concepts, using statistics visualized by learning trajectory. Providing users with incentives that help keep them motivated and engaged during tasks is one of the objective of this research. The features are learning meter, learning index and learning rate, gamification and leaderboard.
Tools/Languages/Technologies: PHP, HTML, CSS, javascript

42. Musheer

Musherr will enable university students to devise a semester plan in the conformance of student advisory guidelines while sitting at home. It is actually design and Development of desktop application for automating and convening the process of Course Advisory using concepts of recommender system. Students and Advisors ar the main targeted users. Students of any year will be to use Musheer to help them devise a suitable semester or degree plan.
Tools/Languages/Technologies: Python, HTML5, CSS3, Bootstrap, website, Artificial intelligence, KNN, collaborative filtering, lazy learning User interface

43. Car Bazaar

The purpose of this project will be to develop a chatbot that will provide intelligent insights to potential buyers regarding cars purchased in an interactive chat. The end-goal of the chat will be to convince the user to move towards an educated decision to buy one of the presented options in a hassle-free and convincing manner. The vehicle data will be provided by CodesOrbit of about 3.5 million cars.

Tools, Language/Technologies: Python, Android Studio, Flask, Rasa, Flutter, MySql

44. Isharay

Isharay is basically a sign language translator which uses mobile camera to detect gestures from the user in front of the camera and then converts it into corresponding text of that sign language gestures and vice versa i.e. it takes some text from user and displays its gestures in sign language on the screen by use of 3d modelling techniques. This application will be mainly used by the deaf community of this world which almost makes 5% of the total population of the world. Moreover, it will be used in :

1. Special institutions for people with hearing disabilities e.g. special care centers , sign language learning schools etc.
2. Firms and Brands who are interested in taking initiatives for such people by making special outlets for deaf people e.g. KFC.
3. By families and friends of deaf people.

Tools, Language/Technologies: Andriod Studio, Tensor Flow, Python, Unity, XCode

45. Mimic Robo

"The project focuses on developing a system that trains itself on a user's voice. It then uses the trained model to generate voice notes identical to the user's voice for textual input provided to it. We are going to provide a mobile application for this, which will make it very easy for any type of user to make a clone of his/ her voice.

Tools, Language/Technologies: Pytorch, Python, Angular, MySQL, React JS

46. Rel-Event
A Predictive Event Finder Application

Rel-event is an event recommendation and searching application which aims to has combine the latest influx of Natural Language processing and machine learning algorithms to open doors for predictive analysis on event searches and popularity of an event. This project aims to scrap live data from event websites and categorize those events into 6 different types such as Sports, Music,Food etc. There will be 2 types of users:

1. Customer
2. Organizer

Tools, Language/Technologies: Firebase, Python, Android Studio, Java, Github

47. Raspberrycar

This is a smart car device which will work by the voice of user, to make a call, send a text, play music/video and radio, navigate offline and to detect object while the car is in reverse. This device will work offline. This is a handsfree device using Raspberry pi, GPS module, Radio module, Bluetooth module, Voice Recognition and Navit software. Then connect all these modules together and make a python and Qt based application which will provide a GUI and help the user to interact with the device. This device will work with voice commands.

Tools, Language/Technologies: Raspberry pi, QT, Arduino, Python

48. GUIDANCE BOT

The basic aim of this project is to make a chat bot that entertains students by replying their queries in an intelligent manner by using deep Learning techniques.

- The data is gathered through Facebook and manual data writing.
- Preprocessing, labeling and cleaning of data through NLP and data mining.
- Includes training of our chat bot on data set and making it that much intelligent to give mature and proper answers to keep the user engaged.

Tools, Language/Technologies: Tensor Flow, Keras, RASA, Slack, Python

49. SmartPlot
The next generation of real estate

SmartPlot aims to be a system which targets housing societies by providing features such as a highly user interactive map along with other features such as privacy protection and an effective search engine to minimize involvement of third parties such as property dealersIn addition to this, the system will be highly user friendly with a user interactive map, an online bidding system as well as a search engine based on properties such as location, type and areas of plots.

Tools, Language/Technologies: Java, C sharp, Visual Studio, ASP .NET, Andriod Studio, Google Map API

50. Control Traffic Violation through Blockchain

A web and mobile application that manages traffic challan data and stores it in a public blockchain to bring transparency within the system. . They are decentralised, no one has control over the network, and are secure in that the data can’t be changed once validated on the blockchain. This application makes it truly simple to deal with the infringement records and to monitor every one of the infringements that are carried out.

Tools, Language/Technologies: Truffle, NodeJS, React, Android Studio, Ethereum

51. SENTISENSE

This application would aid them in deducing the mental health of their patients based on their online activity on social media websites like Facebook and Twitter. The professional will feed the patient’s text data into the app which will then predict the emotion from that piece of text as well as its intensity. The app will then maintain these records in the database which will then be used for useful visualizations from data of multiple predicted emotions and intensities over a long period of time.

Tools, Language/Technologies: Python, TensorFlow, Keras, Java, Android Studio

52. ChildGuard

ChildGuard is an application that will help parents ensure the safety of their children by keeping track of the child's activities, location, call logs, screen time, browser history and key presses. This application will be able to access the internal storage of the child's phone and will run in the background without over draining of battery and overconsumption of processors.

Tools, Language/Technologies: Android Studio, Firebase, HTML5, Bootstrap, Angular JS, NodeJS, JavaScript, Python

53. MarkBot

Main objective of MarkBot:

- Ease the process of marketing and branding.
- To find the target audience for the businesses with the help of AI.
- To put an end to hit and trial methods of running campaigns and finding customers.
- Generate marketing and branding content like posters, logos, marketing copy, and ad optimization.

Tools, Language/Technologies: Python, JS, HTML5, React Native, TensorFlow

54. Semantically Annotated Tajweed of The Holy Quran Semantic Tajweed

The objective of this development project is to deploy ontology for some of Tajweed (Articulations Points of the Letters, Un Vowel Noon and Tajweed) to support the learning of this part of Tajweed and to facilitate the sharing of knowledge with the other Holy Quran applications. The primary objective is to create semantic annotation for the quranic text on which a search engine will be created where search queries can be performed on tajweed rules, since these rules are currently hardcoded in the quranic text and no semantic searches can be performed, this dynamic data format will be publish in link over data (LOD) format.

Tools, Language/Technologies: Android Studio, Angular, Java, Node JS, PHP, LOD Cloud, RDF, OWL

55. SMART COMMERCE SYSTEM

With the increase of E-commerce trends, the companies in Pakistan are also evolving; therefore the advantage of this project would be to provide assistance in making best business decisions. This platform will be providing management related services and business decisions through analytics in the activities of online trading organizations.

Tools, Language/Technologies: JavaScript, NodeJS, SQL, Kafka, Cassandra, React

56. WordsInAction

The project “Words in Action” is a desktop application that can generate an animation from the natural language automatically. Given a limited description about any scenario the application would make the animation accordingly and would try to visualize the scene. The project is about animating the house robbery stories. Only the stories having the description of house robbery would be converted into animations. Armed house robbery is the main concern of this project.

Tools, Language/Technologies: Unity, Python, C Sharp, Github, NLTK

57. WhatNext

WhatNext is a web application in which an AI chat-bot is incorporated in order to test the personality of the user. This will help the user to choose his/her interested field of study. A knowledge graph will be at the back end of the chat-bot from where it will perform the personality assessment of the user. A search engine will also be available for the user to help them find universities. The user will be able to search about universities by their location, degree programs and HEC rankings.

Tools, Language/Technologies: DialogFlow, Python, MongoDB, React, Flask, NodeJS

58. Navigation Assistance for Blind Persons

The scope of this project is to develop an android application that will help visually impaired people move from one place to another. It will use voice commands to communicate with the user. The user will select the destination and criteria for the route, then the app will use street view to determine best route. The application will use camera to detect poles, trees, patches, walls and fences in the path using image processing and guide the user.

Tools, Language/Technologies: Android Studio, Java, mapbox, ML kit for Firebase,

59. CatchPhish: Malicious URL Detection on Twitter with Word Embedding using a Deep Learning

This is an R&D based project, main object of this project is the real time classification of URLs as malicious or benign based on machine learning techniques. This mechanism provides good accuracy in detecting malicious URLs to protect the private data and be safe from monetary losses.

Tools, Language/Technologies: Python, Keras, Javascript, HTML, JQuery, CSS3

60. Malicious Application Detection
Android Based Malicious Applications Detection

Goal of this project is to detect applications on Android systems that are involved in malicious activities such as information leakage, privilege escalation, colluding etc. It will not only detect these activities but will also detect the applications causing these anomalies. This project involves building an application that will detect the applications causing security issues. The application will be built in Android Studio using Machine Learning.

1. This application is anticipated to detect all such applications which are causing these anomalies.
2. Another feature that will be included is to notify the user by maintaining the log.

Tools, Language/Technologies: Python, Java, SQLite, Android Studio

61. Mimic Robo

The project focuses on developing a system that trains itself on a user's voice. It then uses the trained model to generate voice notes identical to the user's voice for textual input provided to it. We are going to provide a mobile application for this, which will make it very easy for any type of user to make a clone of his/ her voice.

Tools, Language/Technologies: Pytorch, Python, Angular, MySQL, React JS

62. PatwariX Land Registry on Block Chain

PatwariX is a Land Transaction and Registry System based on Ethereum (Block Chain). The system includes record handling of lands, buildings or any real estate related property. Chained data link i.e. history is maintained of all previous owners. Multi signature transactions as a land can’t be transferred without the digital signatures of buyer, seller and the authority. Authority can add property initially. The owner is able to transfer his owned lands in separate portions i.e. break a big block and sell.

Tools, Language/Technologies: Angular, Node js, python, Ethereum, Warehouse Management Sofware, Truffle, Ganache